

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Currently Amended) A method for transmitting data symbols in a CDMA communication system including a transmitter having an antenna array and a receiver, the method comprising the steps of:

generating a first and second data field of symbols;

encoding said first and second data field producing complex conjugates of the symbols of said first and second data field;

transmitting from the said transmitter a first communication burst including said first and second data fields separated by a midamble over a first antenna and a second communication burst produced using said complex conjugates of said first and second data fields separated by a midamble over a second antenna;

receiving and decoding at said receiver said first and second communication bursts to recover said first and second data fields, the decoding being performed after said first burst midamble and said second burst midamble are canceled;

wherein said first communication burst comprises said first data field followed by said first burst midamble followed by said second data field followed by a first guard period; and

said second communication burst comprises a negative complex conjugate of said second data field followed by said second burst midamble followed by a complex conjugate of said first data field followed by a second guard period.

2. (Original) The method of claim 1 wherein said encoding includes producing the negation of said complex conjugates of said second data field symbols.

3. (Canceled)

3. ~~The method of claim 2 further comprising the step of generating said first and second communication burst wherein said first communication burst comprises said first data field followed by said first burst midamble followed by said second data field; and~~

~~said second communication burst comprises said negative complex conjugate of said second data field followed by said second burst midamble followed by said complex conjugate of said first data field.~~

4. (Previously Presented) The method of claim 1 wherein said receiving and decoding step comprises:

estimating a channel response of said first and second communication bursts using said bursts' midambles; and

detecting the symbols of said first and second communication bursts in response to said channel response.

5. (Original) The method of claim 4 wherein a base station includes said receiver and a user equipment includes said transmitter.

6. (Original) The method of claim 4 wherein a user equipment (UE) includes said receiver and a base station includes said transmitter.

7. (Currently Amended) A CDMA communication system including a base station and a user equipment (UE), comprising:

an encoder which encodes a first and second data field of symbols to produce complex conjugates of the symbols of said first and second data fields;

a first and second antenna of a transmitter which transmits RF signals including a first and second communication burst, wherein said first communication burst including said first and second data fields separated by a midamble is transmitted by said first antenna and said second communication burst produced using said complex conjugates of said first and second data fields separated by a midamble is transmitted by said second antenna;

a receiver comprising a decoder which decodes said RF signals to recover said first and second data fields, the decoding being performed after said first burst midamble and said second burst midamble are canceled;

a first burst generator, associated with said first antenna, which generates a first communication burst including said first data field followed by said first burst midamble followed by said second data field followed by a first guard period; and

a second burst generator, associated with said second antenna, which generates a second communication burst including said negated complex conjugate of said second data field followed by said second burst midamble followed by said complex conjugate of said first data field followed by a second guard period.

8. (Original) The system of claim 7 wherein said encoder negates said complex conjugate of said second data field.

9. (Canceled)

9. ~~The system of claim 8 wherein said transmitter further comprises:~~

~~a first burst generator, associated with said first antenna, which generates a first communication burst including said first data field followed by said first burst midamble followed by said second data field; and~~

~~a second burst generator, associated with said second antenna, which generates a second communication burst including said negated complex conjugate of said second data field followed by said second burst midamble followed by said complex conjugate of said first data field.~~

10. (Previously Presented) The system of claim 7 wherein said base station includes said receiver and said UE includes said transmitter.

11. (Previously Presented) The system of claim 9 wherein said UE includes said receiver and said base station includes said receiver.

12. (Currently Amended) A transmitter which transmits data symbols in a CDMA communication system including a base station and a user equipment (UE), said transmitter comprising:

an encoder which encodes a first and second data field of symbols to produce complex conjugates of the symbols of said first and second data fields;

a first and second antenna which transmit RF signals including a first and second communication burst, wherein said first communication burst including said first and second data fields separated by a midamble is transmitted by said first antenna and said second communication burst produced using said complex conjugates of said first and second data fields separated by a midamble is transmitted by said second antenna;

a first burst generator, associated with said first antenna, which generates said first communication burst including said first data field followed by said first burst midamble followed by said second data field followed by a first guard period; and

a second burst generator, associated with said second antenna, which generates said second communication burst including said negated complex conjugates of said second data field followed by said second burst midamble followed by said complex conjugates of said first data field followed by a second guard period.

13. (Original) The transmitter of claim 12 wherein said encoder negates said complex conjugate of said second data field.

14. (Canceled)

~~14. The transmitter of claim 13 further comprising:~~

~~a first burst generator, associated with said first antenna, which generates said first communication burst including said first data field followed by said first burst midamble followed by said second data field; and~~

~~a second burst generator, associated with said second antenna, which generates said second communication burst including said negated complex conjugates of said second data field followed by said second burst midamble followed by said complex conjugates of said first data field.~~

15. (Previously Presented) The transmitter of claim 12 wherein said base station includes said receiver and said UE includes said transmitter.

16. (Previously Presented) The transmitter of claim 12 wherein said UE includes said receiver and said base station includes said receiver.